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CLASSIFIED

AWSTR 105-84

AIR WEATHER SERVICE TECHNICAL REPORT

WIND ESTIMATION FROM STATE OF SEA OBSERVATIONS

15 FEBRUARY 1952

DEPARTMENT OF THE AIR FORCE

AIR WEATHER SERVICE
TECHNICAL REPORT 105-84

HEADQUARTERS AIR WEATHER SERVICE
WASHINGTON, 15 FEBRUARY 1952

FOREWORD

1 *Purpose* The report is intended as a guide for estimating surface wind speeds by observing the state of the sea surface from a weather reconnaissance aircraft

2 *Supply of Manuals* The stock of this report will be located at Wilkins Air Force Base Shelby, Ohio Additional copies will be procured in accordance with the provisions of paragraph 4a of AWSR 5-7

BY COMMAND OF BRIGADIER GENERAL SENTER

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US Navy	30
Stock	156

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GENERAL

1010. Weather reconnaissance reporting codes now in use include one group in which is reported the state of the sea and an estimation of the surface wind speed in "Beaufort Scale"

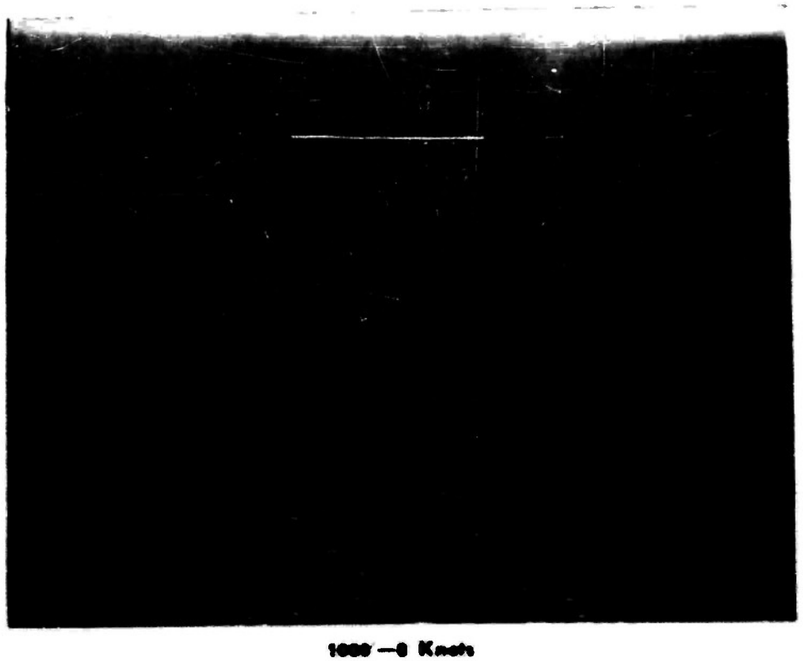
1020. The Beaufort Scale, named after its originator, Admiral Beaufort of the British Navy, was developed in 1805 A. It was originally designed to give seamen an idea of surface wind speed by observing the amount of canvas a full-rigged frigate of the early nineteenth century could carry.

1030. As meteorology progressed the Beaufort Scale was amended by adding verbal descriptions of the visual effects of wind as observed on land and on the coast. The requirement still exists for a description of the effects of surface wind as observed from an aircraft in flight This report is a first approach to solving the problem, assuming that a sea surface is visible

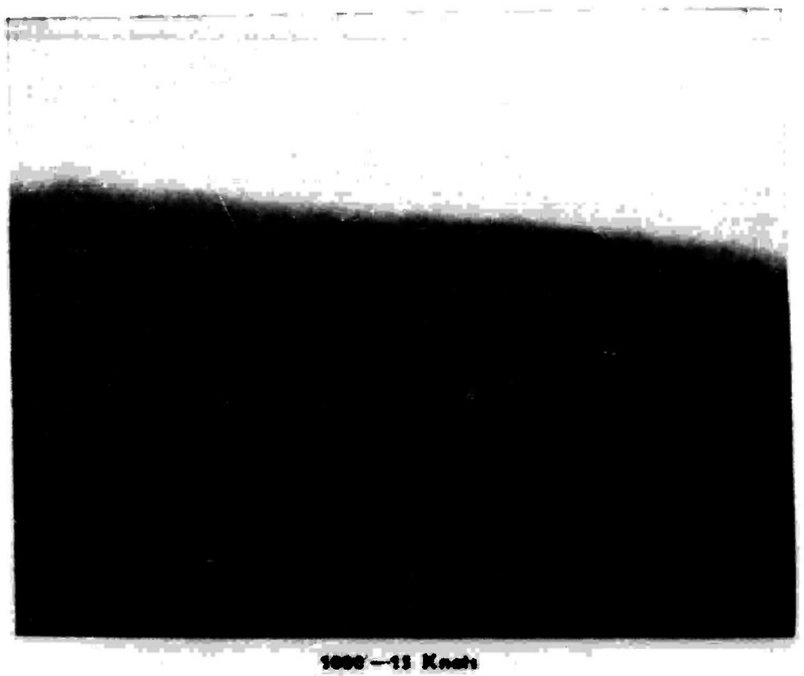
1040. The introduction and improvement of wind speed measuring instruments (anemometers), with a much higher degree of accuracy than that given in the ranges of the Beaufort Code figures (code 5, for example, covers the range of 17 21 knots), prompted a change in reporting methods. As of 1 January 1949, wind speeds were reported in knots, rather than in units of the Beaufort scale, for international surface weather reporting codes. The rules for reporting surface wind as observed from moving aircraft were not similarly changed, probably because the range inherent in the Beaufort Scale code figures was well within the limits of accuracy of the observer's estimate

1050. The photographs in this report were taken and published (under the same name) by U. S. Navy Patrol Squadron VP-23, Naval Air Station, Miami, Florida. Speed values below 65 knots were computed; those above 65 knots were estimated by experienced aerologists attached to the squadron.

1060. Weather reconnaissance units of Air Weather Service are encouraged to submit additional photographs which may become available These photographs should be annotated with wind speed (and method of determination, i. e., ship report, estimated, etc.), aircraft altitude, latitude, longitude and time of photograph. While negatives are desirable, glossy prints of superior quality are acceptable; and such pictures will be issued as amendments to this report



1000'—8 Knots

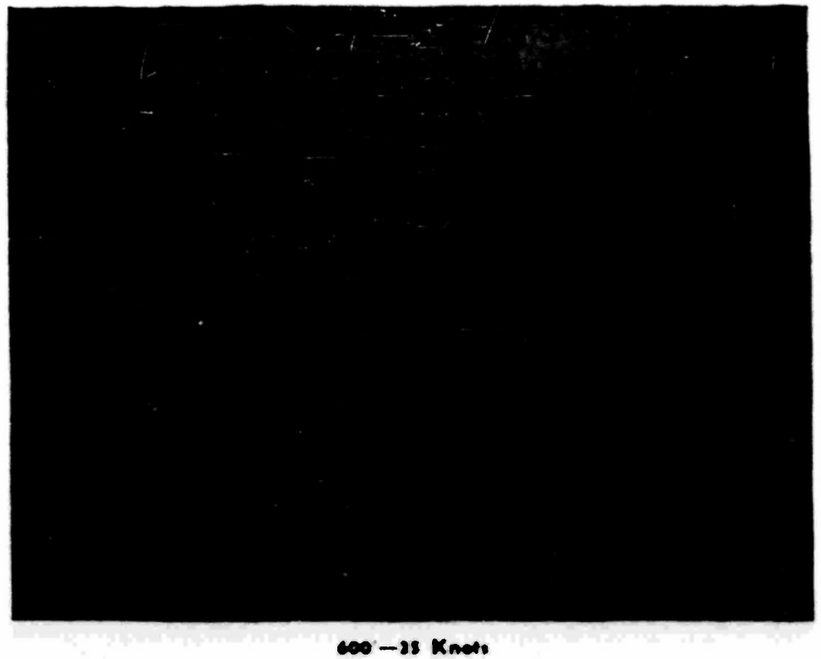


1000'—15 Knots
Entering Hurricane Area (10-8-49)

800'—25 Knots
(11-9-47)

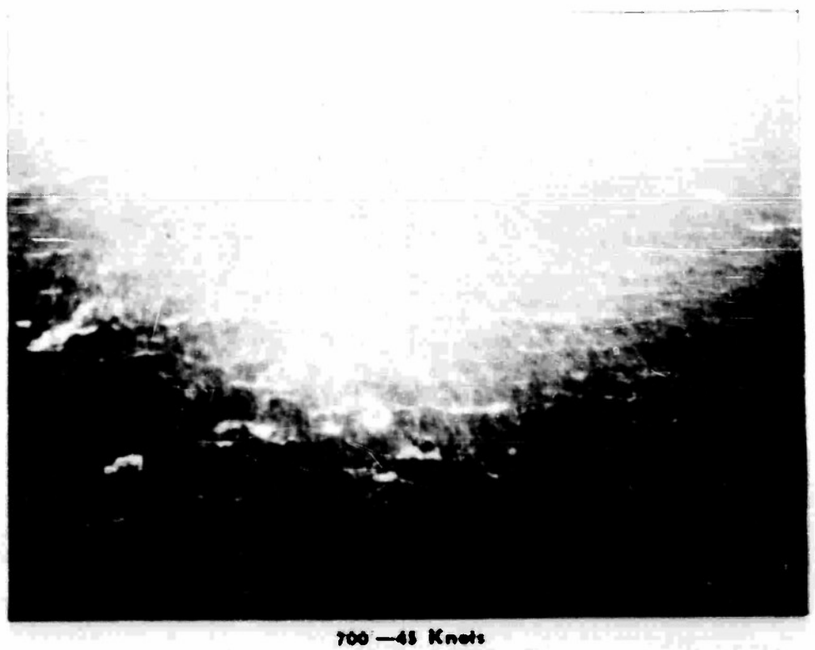
1000'—35 Knots
Outside Hurricane (23-8-49)

1100 — 35 Knots
(18-8-47)



600 — 35 Knots
Inland Water Surface (12-7-47)

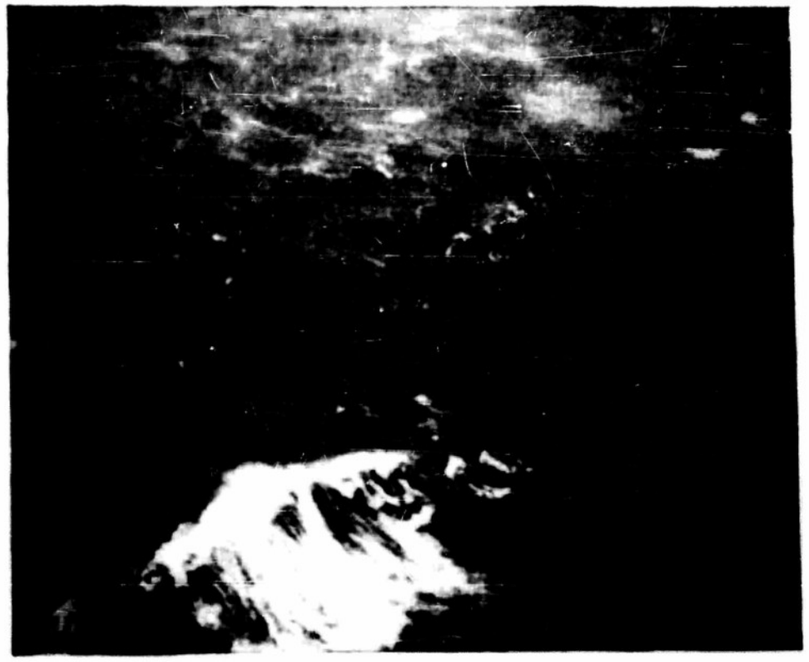
750 — 40 Knots
(23-8-49)



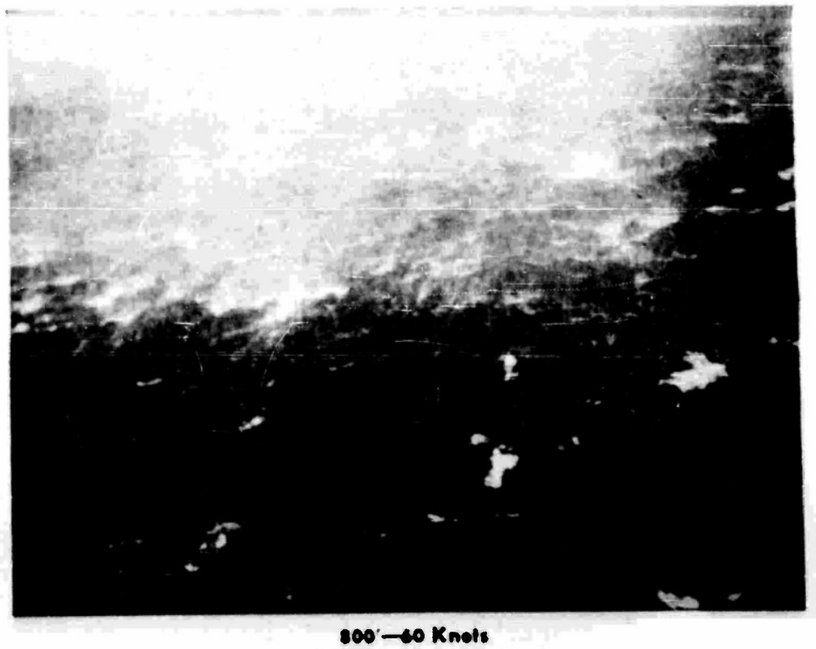
700 — 45 Knots
Entering Hurricane (25-9-46)

600'—45 Knots
(14-8-49)

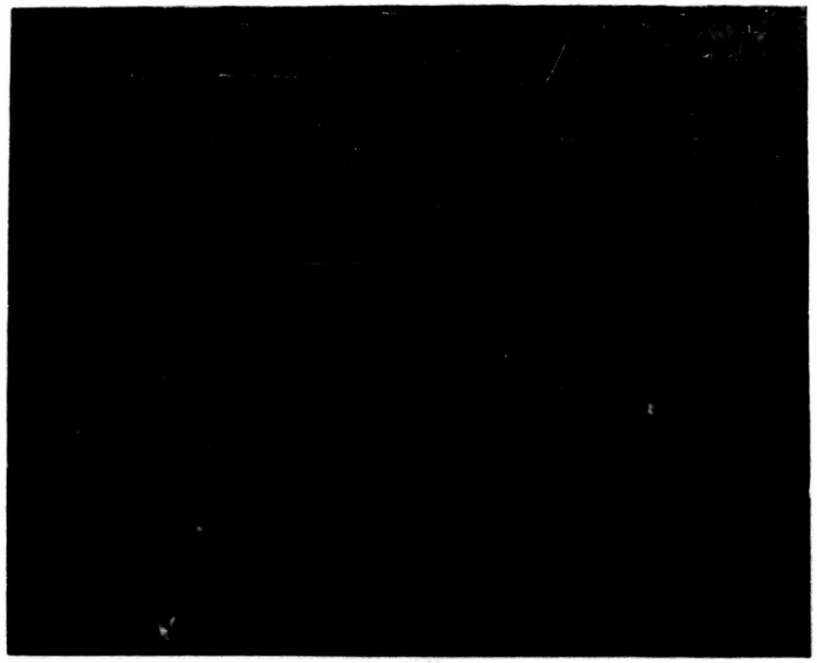
1000'—45 Knots
in Hurricane (12-9-46)



500'—55 Knots
(19 10 47)



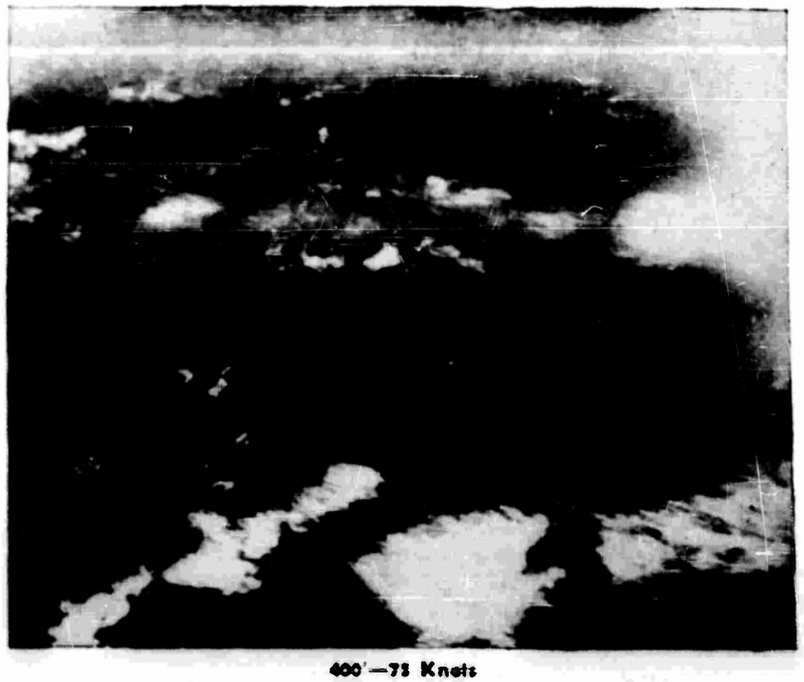
800'—60 Knots
(14-8-47)



700 —65 Knots
(22-8-49)

300 —70 Knots
In Hurricane (7-10-46)

600 —70 Knots
(14-8-47)



400 —75 Knots
In Hurricane (14-9-46)

200 —Unknown
Edge Of Hurricane Eye (18-10-47)

300 —Unknown
Flurry at Edge of Hurricane Eye (13-9-47)

1100 —Unknown
In Hurricane Eye (22-8-49)

900 —Unknown
In Hurricane Eye (22-8-49)

900 —Unknown
Entering SW Edge of Hurricane Eye (2-10-49)